Cape Fear River Use Designation Modification from Class C to WS-IV

Background:

- North Carolina Division of Water Quality (DWQ) submitted a request for approval for a use classification revision for a 10-mile stretch of the Cape Fear River from Class C to Water Supply IV. (Receipt date: August 5, 2009.)
- EPA must approve/disapprove within 150 days.
- Request originated with Lower Cape Fear Water & Sewer Authority (LCFW&SA). In 2004, NC EMC and Lumber River Council of Governments entered into a comprehensive agreement to develop a plan for long-range, sustainable water supply sources. This proposal is an outgrowth of that plan.
- The new facility, the Bladen Bluffs Surface Water Treatment System will initially be used by Smithfield Packing Company (4 MGD) as their potable water supply for production and Smithfield's 5,000 employees.
- The long term plan is to store and treat 30 MGD, supplying drinking water for several coastal communities.
- Dupont, employing 900+ employees, is located 5 miles upstream from proposed intake and produces, among other things, fluoropolymers.
- Dupont's NPDES permit has monitoring for PFOA, which has series health effects for both aquatic species and human health. Dupont on a voluntary schedule to reduce PFOA from emissions and product content by 95% no later than 2010 and eliminate it by 2015.
- The use change proposal meets DWQ's *current* water supply criteria for WS-IV. There are no current criteria for PFOA or related compounds.
- NC Public Water Supply Section (PWSS) stated that PFOA sampling data provided by DWQ and the LCFW&SA showed "no significant increase in PFOA" due to the discharge from Dupont. (Those studies were requested from DWQ.) The PWSS finding was "...we can only conclude that the PFOA should not prevent the reclassification of this stream." It did not discuss monitoring or treatment recommendations.
- Final recommendation to allow reclassification by DWQ, stated, "the Hearing Officer has considered...the opinion of NCDHEC PWS Section staff that the subject waters can be used as drinking water supply once treated.." It does not go into any detail on how it will be treated.
- The effective date of the use change was January 1, 2009.
- From the web: Bladen Bluffs Regional Surface Water System is proposed for construction with a RFB (request for bid) which ended 9/1/09.

From NC *WQS 15A NCAC 02B .0216 Fresh Surface WQSs for WS-IV Waters:*
"...the waters, ***following treatment*** required by the Division of Environmental Health, shall meet the MCLs considered safe for drinking, culinary or food processing...which are specified in the national drinking water regulations and NC Rules..."

"Quality standards applicable to Class WS-IV Waters are as follows:

(a) ...industrial wastes, non-process industrial wastes or other wastes: ***none shall be allowed...that shall have an adverse effect on human health*** or that are not

effectively treated to the satisfaction of the Commission and in accordance with the requirements of the Division of Environmental Health, NC DENR."

Additional information:

- OW Provisional Health Advisory of 0.4 ppb was issued January 8, 2009, ***after*** the effective date of the use change. NJ uses 0.04 ppb (or 40 ng/L).
- From the study, *Perfluorinated Compounds in the Cape Fear Drainage Basin in North Carolina* (Nakayama, et al. 2007) provided by EPA HQ:
    - 26 sites on the Cape Fear River had PFOA above 40 ng/L.
    - "...findings indicate the potential for exposures above this threshold if PFOA is not effectively removed by drinking water treatment plants using the Cape Fear River...as source water. The removal of all PFC's by water treatment processes should be evaluated."
- EPA Region 4 has conducted site visits and responded to concerns at the Dupont-Fayetteville facility in the past (Lee Thomas and David Parker).
- Dupont DMR PFOA data for the past 18 months attached. (Most values are above the NJ threshold, below the EPA Provisional Health Advisory.)
- There are possibly other sources than just from NDPES discharge, including air emissions, groundwater contamination and possibly other users (Fort Bragg?).
- [Dan & Tom may be able to find out more information on what is planned as treatment at Bladen Bluffs?]
- Many unknowns at this point regarding full range of toxicity, co-associated compounds (PFOS, telomere alcohols, etc.), testing methodology, treatment and removal technologies.

Options for EPA's Response:

- Ask the State to review the decision in light of the Provisional Health Advisory which was issued after the effective date of this action. Send an information request for data on PFOAs at the intake and/or in the sediment, as well as fish studies or other biological studies. Request specific information on the plan for how the surface water will be treated to remove PFOAs.
- Set up a call with DWQ management to discuss the broader range of experience that the Region has had with other PFOA contaminations and talk through the implications for the drinking water intake. Clarify the State's understanding of the treatment needed for the contaminants and determine how to move forward.
- Approve the use change revision, as is, based on the current water quality criteria for WS IV waters. Include a recommendation that NC Public Water Supply staff work closely with the Bladen Bluffs Surface Water Treatment facility to ensure that emerging contaminants, including PFOS and PFOAs can be adequately removed. Offer the assistance of EPA Regional and HQ PFOA experts.
- Approve the use change revision, as is, based solely on the review of the current water quality criteria, which does not include PFOS or PFOA.

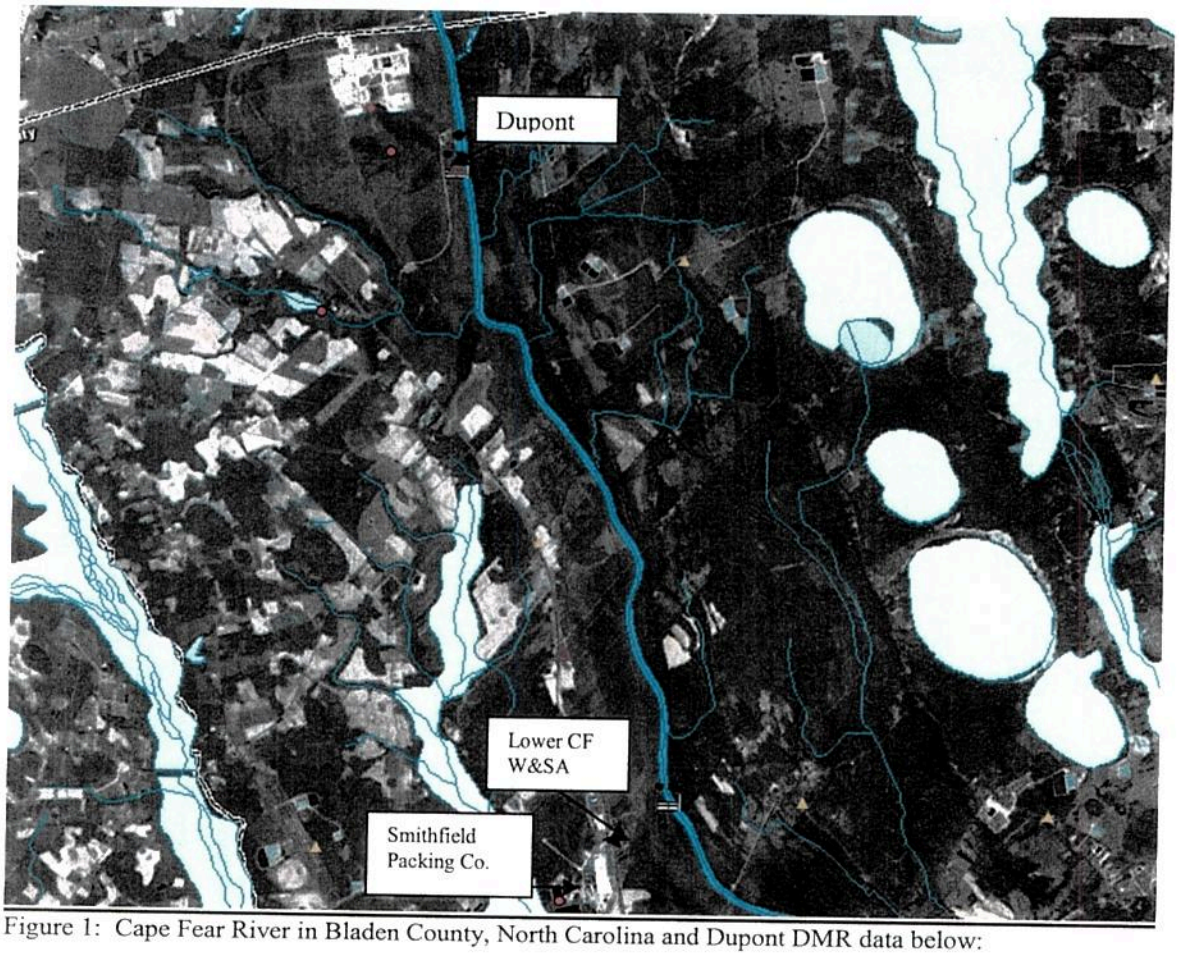

Figure 1: Cape Fear River in Bladen County, North Carolina and Dupont DMR data below:

Jan 2008	ug/l	0.14
Feb 2008	ug/l	0.15
Mar 2008	ug/l	0.1
Apr 2008	ug/l	0.14
May 2008	ug/l	0.12
Jun 2008	ug/l	0.11
Jul 2008	ug/l	0.2
Aug 2008	ug/l	0.097
Sept2008	ug/l	0.02
Oct 2008	ug/l	0.13
Nov 2008	ug/l	0.06
Dec 2008	ug/l	0.04
Jan 2009	ug/l	0.05
Feb 2009	ug/l	0.03
Mar 2009	ug/l	0.019
Apr 2009	ug/l	0.04
May 2009	ug/l	0.22
Jun 2009	ug/l	0.08
July 2009	ug/l	0.05